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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/566,970

02/02/2006

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YCO-0001

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EXAMINER

VO, HAI

ART UNIT

PAPER NUMBER

1794

MAIL DATE

DELIVERY MODE

10/23/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/566,970	Applicant(s) YAMAGUCHI ET AL.	
	Examiner Hai Vo	Art Unit 1794	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 August 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-21 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

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1. The 112 claim rejections have been withdrawn in view of the present amendment.
2. The 102/103 art rejections over Bopp et al (US 5,145,877) have been overcome in view of the present amendment. Bopp does not teach the foam layer being perforated for forming the pore portions as set forth in the claims.
3. The 102 art rejections based on Vonken et al (US 5,618,853) and WO 02/22723 separately are changed to the 102/103 art rejections.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1, 2, 4-7, and 17-21 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Vonken et al (US 5,618,853). Vonken teaches a foam sheet made from polyphenylene oxide and a styrene polymer (column 4, lines 9-13). The foam has an open cell ratio of at least 50% (column 4, lines 48-50). The foam sheet has an open cell portion disposed

between two closed cell portions (column 5, lines 65-67 to column 6, lines 1-10). Each closed cell portion reads on Applicants' skin material and noise preventing member. The pore portions are formed on the surface of the foam layer by perforation (column 5, lines 25-30). This is the same mechanical means employed by Applicants. The claimed depth of the pore portions appears to cover a widely broad range. The pore portions have a depth from 10 to 95% of the thickness of the foam layer. In view of the extremely wide range of the depth and in the absence of unexpected results, the examiner believes any pore portions produced from the same perforation technique as that of the present invention would substantially exhibit the depth and the same shape as set forth in the claims. Although Vonken does not specifically disclose the pore portions are designed to induce the vibration energy of sounds into the open cells of the foam layer, such properties would be substantially inherently present. Vonken's product is not structurally different from the claimed foam sheet. The modified polyphenylene ether based resin foam sheet having an open cell of 50% or more as a whole. The foam sheet comprises an open cell foam layer and pore portions formed on the surface of the foam layer by perforation. The open cell content of the foam layer is at least of 50%. It seems from the claim, if one meets the structure recited, the properties must be met or Applicant's claim is incomplete as like material has like property.

The preamble "a car interior member" has not given patentable weight because it has been held that a preamble is denied the effect of a limitation where the claim is drawn to a structure and the portion of the claim following the preamble

is a self-contained description of the structure not depending for completeness upon the introductory clause. *Kropa v. Robie*, 88 USPQ 478 (CCPA 1951). Accordingly, Vonken anticipates or strongly suggests the claimed subject matter.

7. Claims 8, and 11-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Vonken et al (US 5,618,853) in view of WO 02/22723. Naito et al (US 7,166,348) will be relied on as an equivalent form of WO 02/22723. Vonken does not specifically disclose the thickness of the closed cell surface layer. Naito, however, teaches a heat insulating material comprising a foam material having an inner part with an open cell content of at least 90% and an outer part with a closed cell structure (column 8, lines 40-55). Naito teaches that the thickness of the closed cell layer is about 16% of the thickness of the foam sheet (example 1). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to use the foam sheet having a thickness of the closed cell skin from 1 to 25% of the thickness of the foam sheet because such is well-known in the art and Naito provides necessary details to practice with the invention of Vonken.

Vonken does not specifically disclose the contents of a phenylene ether component and a styrene component in the foam sheet. Naito teaches a foam sheet made from polystyrene-polyphenylene oxide copolymer (column 3, lines 9-10). The styrene component content is at least about 50% by weight (column 2, lines 55-60). Likewise, the polyphenylene oxide is about 50% by weight or less. The foam further includes a rubber component (column 3, lines 45-46). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to

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use the foam sheet having the phenylene ether component and the styrene component with the contents in the ranges as taught by Naito motivated by the desire to provide the foam having excellent heat resistance.

8. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Vonken et al (US 5,618,853). Vonken does not specifically disclose the ratio of the total opening area of the perforations to the surface of the foam sheet. However, since the ratio is recognized as a result-effective variable, differences in the ratio will not support the patentability of subject matter encompassed by the prior art unless there is evidence indicating such is critical or provide unexpected results. Therefore, absent unexpected results, it would have been obvious to one having ordinary skill in the art at the time the invention was made to use the ratio of the total opening area of the perforations to the surface of the foam sheet in the range instantly motivated by the desire to provide the foam having high absorptivity for liquids. This is in line with *In re Aller*, 105 USPQ 233 which holds discovering the optimum or workable ranges involves only routine skill in the art.

9. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Vonken et al (US 5,618,853) as applied to claim 1 above, further in view of Joppen et al (US 6,103,163). Vonken does not specifically disclose the opening end area of the perforations. Joppen, however, teaches the foam being perforated by means of needles with a diameter about 1mm to 2mm (column 7, lines 55-60). Likewise, the perforations are created with the opening end area ranging from 0.8 to 3.14 mm². Therefore, it would have been obvious to one having ordinary skill in the art at the

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time the invention was made to form the perforations with the opening end area in the range as taught by Joppen motivated by the desire to provide the foam having high absorptivity for liquids.

10. The art rejections based on Vonken have been maintained for the following reasons.

Applicants argue that nowhere does Vonken teach or suggest the perforation designed to absorb sound energy. The examiner respectfully disagrees. Vonken's product is not structurally different from the claimed foam sheet. The modified polyphenylene ether-based resin foam sheet has an open cell of 50% or more as a whole. The foam sheet comprises an open cell foam layer and pore portions formed on the surface of the foam layer by perforation which is the same mechanical means employed by Applicants. The open cell content of the foam layer is at least of 50%. It seems from the claim, if one meets the structure recited, the properties must be met or Applicant's claim is incomplete as like material has like property. The sound absorption would be inherently present. Accordingly, the art rejections over Vonken are sustained.

11. Claims 1, 2, 4-8, 11-13 and 17-21 are rejected under 35 U.S.C. 102(b) as

anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over WO 02/22723. Naito et al (US 7,166,348) will be relied on as an equivalent form of WO 02/22723. Naito teaches a foam sheet made from polystyrene -polyphenylene oxide copolymer (column 3, lines 9-10). The styrene component content is at least about 50% by weight (column 2, lines 55-60). Likewise, the polyphenylene oxide is about 50% by weight or less. The foam further includes a rubber component (column 3,

lines 45-46). The foam has an open cell ratio of at least 90% (column 8, lines 40-55). The foam sheet has an open cell portion disposed between two closed cell portions. Each closed cell portion reads on Applicants' skin material and noise preventing member. Each closed cell portion also reads on Applicants' modified polyphenylene ether based resin sheet. The closed cell surfaces of the foam are opened by perforation (column 9, lines 1-10). The thickness of the closed cell layer is about 16% of the thickness of the foam sheet (example 1). The pore portions are formed on the surface of the foam layer by perforation. This is the same mechanical means employed by Applicants. The claimed depth of the pore portions appears to cover a widely broad range. The pore portions have a depth from 10 to 95% of the thickness of the foam layer. In view of the extremely wide range of the depth and in the absence of unexpected results, the examiner believes any pore portions produced from the same perforation technique as that of the present invention would substantially exhibit the depth and the same shape as set forth in the claims. Although Naito does not specifically disclose the pore portions are designed to induce the vibration energy of sounds into the open cells of the foam layer, such properties would be substantially inherently present. Naito's product is not structurally different from the claimed foam sheet. The modified polyphenylene ether based resin foam sheet having an open cell of 50% or more as a whole. The foam sheet comprises an open cell foam layer and pore portions formed on the surface of the foam layer by perforation. The open cell content of the foam layer is at least of 90%. It seems from the claim, if one meets the structure recited, the

properties must be met or Applicant's claim is incomplete as like material has like property.

The preamble "a car interior member" has not given patentable weight because it has been held that a preamble is denied the effect of a limitation where the claim is drawn to a structure and the portion of the claim following the preamble is a self-contained description of the structure not depending for completeness upon the introductory clause. *Kropa v. Robie*, 88 USPQ 478 (CCPA 1951). Accordingly, Naito anticipates or strongly the claimed subject matter.

12. Claims 3, and 14-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over WO 02/22723 as applied to claim 1 above, further in view of Sugahara et al (US 6,042,765). Naito does not specifically disclose a vacuum heat insulating material comprising a surface layer attached to the surface of the foam layer. Sugahara, however, teaches a vacuum heat insulating material comprising a surface layer attached to the surface of the foam layer wherein the surface layer is made from a non-woven web of glass fibers, polyamide fibers and a thermoplastic resin (abstract, column 8, lines 15-22). Sugahara teaches the surface layer and the foam layer integrated with each other through the thermoplastic resin of the surface layer (column 10, lines 35-42) or an adhesive (column 34, lines 49-52). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to use the surface layer of a non-woven web laminated to the foam layer motivated by the desire to provide the foam having excellent bending strength.

It appears that the heat insulating material of Naito as modified by Sugahara meets all the structural limitations as set forth in the claims, namely a surface layer made from glass fiber and polyamide fibers and a modified polyphenylene ether based resin foam sheet. Therefore, it is the examiner's position that the expression $T_g - 65^{\circ}\text{C} \leq T_m \leq T_g + 40^{\circ}\text{C}$ would be inherently present.

13. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over WO

02/22723. Naito does not specifically disclose the ratio of the total opening area of the perforations to the surface of the foam sheet. However, since the ratio is recognized as a result-effective variable, differences in the ratio will not support the patentability of subject matter encompassed by the prior art unless there is evidence indicating such is critical or provide unexpected results. Therefore, absent unexpected results, it would have been obvious to one having ordinary skill in the art at the time the invention was made to use the ratio of the total opening area of the perforations to the surface of the foam sheet in the range instantly motivated by the desire to provide the foam having higher open cell content and excellent compressive strength. This is in line with *In re Aller*, 105 USPQ 233 which holds discovering the optimum or workable ranges involves only routine skill in the art.

14. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over as applied to WO 02/22723 as applied to claim 1 above, further in view of Joppen et al (US 6,103,163). Naito does not specifically disclose the opening end area of the perforations. Joppen, however, teaches the foam being perforated by means of needles with a diameter about 1mm to 2mm (column 7, lines 55-60). Likewise, the

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perforations are created with the opening end area ranging from 0.8 to 3.14 mm².

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to form the perforations with the opening end area in the range as taught by Joppen motivated by the desire to provide the foam having higher open cell content and excellent compressive strength.

15. The art rejections based on Naito have been maintained for the following reasons.

Applicants argue that nowhere does Naito teach or suggest the perforation designed to absorb sound energy. The examiner respectfully disagrees. Naito's product is not structurally different from the claimed foam sheet. The modified polyphenylene ether-based resin foam sheet has an open cell of 50% or more as a whole. The foam sheet comprises an open cell foam layer and pore portions formed on the surface of the foam layer by perforation which is the same mechanical means employed by Applicants. The open cell content of the foam layer is at least of 90%. It seems from the claim, if one meets the structure recited, the properties must be met or Applicant's claim is incomplete as like material has like property. The sound absorption would be inherently present. Accordingly, the art rejections over Naito are sustained.

Conclusion

16. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

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A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

17. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hai Vo whose telephone number is (571) 272-1485. The examiner can normally be reached on Monday through Thursday, from 9:00 to 6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Terrel Morris can be reached on (571) 272-1478. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

HV

/Hai Vo/
Primary Examiner, Art Unit 1794